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Respectfully submitted,

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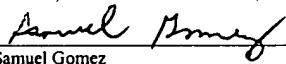
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BY: 
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Application of: Wolfgang KREMERS et al.
International Application No. PCT/EP00/00479
Filed Herewith

VERSION OF SPECIFICATION AND CLAIMS AMENDMENTS
WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Page 1, before paragraph [0001]: --Field of the Invention--[Field of the Invention]

Page 1, paragraph [0001]:

[0001] The present invention relates to a self-recovering current-limiting device with liquid metal [according to the definition of the species in Claim 1] , including two electrodes made of solid metal and a plurality of compression spaces partially filled with the liquid metal.

Page 1, before paragraph [0002]: --Related Technology--[Related Art]

Page 2, before paragraph [0004]: --Summary of the Invention--[Summary of the Invention]

Page 2, paragraph [0004]:

[0004] Therefore, [the] an object of the present invention is to [improve the current-limiting behavior of a current-limiting device, in particular with respect to its current-limiting factor and its response time] provide a current-limiting device with liquid metal, the current-limiting device having an improved current-limiting factor and response time.

Page 2, paragraph [0006]:

[0006] The repulsive electromagnetic forces produced by the opposite current path flow in the first connecting conductor and in the liquid metal as well as the concentration of the magnetic

field by the ferromagnetic body deviate the current path inside the current-limiting device in such a manner that, on one hand, an electric arc developing the event of a short circuit is lengthened and, on the other hand, the pinch pressure arising in the case of higher currents gives rise to a quicker pinch-off of the current path in the region of the connecting channels. The magnetic forces which are decisive in the process are in square proportion to the current so that the described effect is negligible during nominal operation but the positive influence on the current-limiting behavior occurs in the range of the short-circuit currents. The described acting mechanism is self-acting, that [is] is, it is [solely] based on the tripping action of a short-circuit current and of the resulting magnetic field.

Page 3, before paragraph [0011]: --Detailed Description--[Best Ways of Implementing the Present Invention]

Page 3, paragraph [0011]:

[0011] Single-pole current-limiting device 1 [contains one] includes an electrode [11 or 12] 11, 12 made of solid metal, preferably of copper, on each of the two sides, respectively, the electrode having a rotationally symmetrical design and merging into an outer connecting conductor [21 or 22] 21, 21, respectively. Located between electrodes 11 and 12, are a plurality of compression spaces 3 which are formed by a corresponding number of ring-shaped sealing disks 4 and a corresponding number of insulating intermediate walls 6. Electrodes 11 and 12, sealing disks 4, and intermediate walls 6 are supported by a molded housing 5, known [means] devices being provided for sealing compression spaces 3 and frictionally connecting elements 11, 12, 4 and 6 which are supported in molded housing 5, however, the known [means] devices not being shown for reasons of clarity. The [means] device for sealing can be, for example, sealing rings between sealing disks 4 and intermediate walls 6 and electrodes 11, 12, respectively. The [means] device for frictionally connecting [are] can be, for example, continuous clamping bolts along the two lines 7. The two outer compression spaces 3 are each laterally bounded by one of electrodes 11 and 12, respectively, and by an intermediate wall 6. Inner compression spaces 3 are each laterally bounded by two intermediate walls 6. The generally multi-part molded housing 5 and sealing disks 4 are pressure-resistant first and second insulating bodies. All compression spaces

3 are at least partially filled with a liquid metal 8, for example, a GaInSn alloy. Located above liquid metal 8 is, for example, a vacuum. Intermediate walls 6 are provided with connecting channels 9 below the liquid level. Connecting channels 9 are also filled with liquid metal 8.

Page 4, paragraph [0012]:

[0012] [Left, first] First connecting conductor 21 which belongs to left, first electrode 11 is run inside molded housing 5 beneath compression spaces 3 and exits molded housing 5 on the right side. [Right, second] Second connecting conductor 22 which belongs to right, second electrode 12 exits molded housing 5 on the right side as well. A ferromagnetic body 10 affixed in molded housing 5 extends above compression spaces 3. [Second] First connecting conductor 21 runs in such a manner that the current through liquid metal 8 and through second connecting conductor 22 is directed in the opposite direction, as a result of which a first electromagnetic force component F1 is exerted on the current in liquid metal 8. The action of the magnetic field influenced by ferromagnetic body 10 exerts a second electromagnetic force component F2 on the current in liquid metal 8. Both force components F1 and F2 are directed essentially upward but have no significant effect on the current in liquid metal 8 during the normal operation of current-limiting device 1. During the occurrence of an external short circuit, however, force components F1 and F2 increase to such an extent that the developing current-limiting electric arc is considerably deflected inside compression spaces 8 and thus lengthened. This condition is indicated by broken line L in Fig. 1. Due to the lengthened, meander-shaped course of the electric arc, the arc resistance increases to a considerable degree. Because of the thus reduced ratio of the let-through current to the triggering short-circuit current, an improved current-limiting factor is achieved via current-limiting device 1. The lengthening of the current-limiting electric arc is additionally promoted by the staggered arrangement of connecting channels 9 belonging to adjacent intermediate walls 6.

Page 6 first line : --WHAT IS CLAIMED IS--[What is claimed is]